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Traditional Engklek Game for Counting Skills of Children Aged 5-6 Years in Jambu Village Kayan Hilir District

Siska Sumarni[1], Halida[2], Lukmanulhakim[3], Horeb Rohait[4]
[1,2,3]Tanjungpura University, Pontianak, Indonesia
[4]University of the Punjab, Lahore District, Punjab, Pakistan

ABSTRACT

Purpose – This study was conducted to explore the role of the traditional game engklek in developing numeracy skills among children aged 5–6 years. The topic is relevant as early childhood education should align with children's developmental characteristics, particularly learning through play. The research argues that traditional games, beyond entertainment, have significant educational value when integrated into early learning practices.

Design/methods/approach – This research employed a qualitative approach with a case study design. Data were collected through participant observation, in-depth interviews with children and adult informants, and documentation of play activities. Thematic and descriptive analysis was conducted, supported by triangulation to ensure data validity

Findings – The results revealed that the engklek game effectively stimulates children's numeracy skills, especially in recognizing numerical sequences, understanding quantity concepts, and identifying number symbols through enjoyable, tangible experiences. The game supports active learning embedded within the children's sociocultural context

Research implications/limitations – The study was limited by a narrow participant scope and focused on a single form of traditional game, thus not encompassing the diversity of local play practices. Nevertheless, the findings suggest the importance of revitalizing traditional games as part of a contextual and holistic approach to early childhood education.

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Corresponding Author:

Siska Sumarni
Jalan Karya Bhakti, Akcaya, South Pontianak District, Pontianak City, West Kalimantan 78121
Early Childhood Education Teacher Education, Tanjungpura University, Pontianak, Indonesia
Email: sumarnisiska15@gmail.com

Introduction

Education serves as a fundamental space for the growth and development of children, especially during early childhood—a critical phase marked by active, explorative behavior and a strong desire for new experiences. Early childhood spans the ages of 0 to 8 years, a vital period that determines the quality of development across various domains, including cognitive, social, motor, and emotional aspects (Lucas, 2017). At this stage, learning ideally takes place through interaction with the surrounding environment, particularly through play, which is an inseparable part of a child's world. In this context, numeracy skills—as part of cognitive abilities—serve as an essential foundation for understanding number concepts, symbols, and basic mathematical operations. Pudjianti and Masykouri (in Khadijah) emphasize that children's thinking abilities involve not only memory and problem-solving but also the skill to associate numerical symbols with tangible objects in their environment. Therefore, introducing early childhood numeracy through engaging and culturally relevant approaches is essential for their holistic development (Hidayah & Retnawati, 2024; Nugraha & Nuriadin, 2025).

Literature indicates that young children do not acquire numeracy skills solely through instructional approaches, but rather through meaningful play activities. Reid (2016) explains that children's numeracy includes the ability to compare, estimate, and recognize numerical symbols through real-life experiences such as singing or playing. This play-based approach is supported by Piaget's theory of cognitive development (as cited in Widyastuti, 2017), which posits that children learn through concrete interactions before developing abstract thinking. In this context, traditional games, such as engklek (*hopscotch*), hold great potential as a means to stimulate numeracy skills (Khasanah & Purnamasari, 2023). These traditional games, according to M. Fadillah (2019) and Khasanah, Prasetyo, & Rakhmawati (2023), possess not only educational value but also deep cultural and social significance (Abdurraheem et al., 2024; Usman & Yusuf, 2022). Studies have demonstrated that traditional games are effective in enhancing cognitive skills, including problem-solving, logical reasoning, and analytical abilities in young children (Alvisari et al., 2024; Hasan & Husein, 2024; pradhana et al., 2024), as well as memory and concentration (Abdurraheem et al., 2024).

Nevertheless, amid the rapid advancement of technology, traditional games are increasingly being displaced by the dominance of modern, gadget-based, and digital console games. Masykura Setiadi et al., (2024) observes that this shift has led to a growing detachment of children from collaborative and context-based traditional games. This condition is reflected in Jambu Village, Kayan Hilir District, where children aged 5–6 are more often engaged with digital games than with traditional games such as engklek. Observations indicate, however, that children who still play engklek tend to have more developed numeracy abilities (Apriyanda et al., 2024; Pertiwi et al., 2018). This fact reveals a research gap between the potential of traditional games as cognitive stimulants and the

actual play practices of children, which underutilize local cultural resources as learning media. Despite the numerous benefits of play-based learning, implementation challenges include resource constraints and a lack of pedagogical understanding (Ndlovu et al., 2023; Yean & Ngadni, 2024).

The urgency of this research lies in the effort to revitalize traditional games as effective and developmentally appropriate learning tools for early childhood. Considering that engklek is a game widely known in the community and requires minimal resources, its potential to support children's numeracy development deserves deeper investigation. Sujiono (2014) asserts that numeracy is a fundamental skill in mathematics that should be cultivated early to prepare children for formal education. Furthermore, previous studies by Adpriyadi (2017), Desvarosa (2016), and Pratiwi (2018) have demonstrated the effectiveness of engklek in enhancing children's ability to recognize, name, and understand numbers from one to ten. However, these studies have mostly focused on outcome measurement and have not deeply explored the integration of local culture as a foundation for holistic learning, which represents the position of this research among other relevant studies. This study aims to address this gap by understanding how local wisdom can enrich and make numeracy learning more engaging and relevant for children (Winnuly et al., 2024).

In light of this context, the present study aims to analyze how the traditional game engklek can be used as a medium to enhance the numeracy skills of children aged 5–6 years in Jambu Village, Kayan Hilir District. It also seeks to determine the extent to which this traditional game remains relevant, accessible, and acceptable to children as part of a fun and contextual play-based learning process. The hypothesis proposed is that engklek can significantly improve early childhood numeracy through a fun, contextual, and culturally rooted play experience. The findings of this study are expected to contribute to the development of culturally responsive learning models that are more adaptive to the characteristics and needs of early learners. This will provide a new contribution to the scholarship in the field of early childhood education, particularly in demonstrating the potential of local wisdom to enrich the learning process and prepare children with a strong foundation for future success.

Materials and Methods

This study uses a qualitative approach with a case study design, which aims to explore in depth how traditional engklek games contribute to the numeracy ability of children aged 5–6 years in Jambu Village, Kayan Hilir District (Nasution, 2023). The subjects consisted of five children (three girls and two boys) aged between 5 and 6 years, as well as two adult participants who were parents and members of the local community, aged 28 and 37 years respectively. The selection of subjects was carried out purposively, namely based on the direct involvement of children in the game of engklek and the

knowledge of parents of their children's play activities. The study was carried out in May 2024 in the participants' living environment, allowing contextual observation of children's natural play activities.

The data collection methods in this study included passive participatory observation, in-depth interviews, and visual documentation. The instruments used include observation sheets that contain indicators of children's numeracy ability, such as "mentioning the numbers 1-10 in order" and "pairing number symbols with the appropriate number of squares"; open-ended interview guidelines with questions such as "How do you see the benefits of the game of knicking on a child's ability to recognize numbers?"; as well as documentation in the form of photos of children's activities while playing. Data scoring was carried out qualitatively by classifying children's narratives and behaviors based on thematic categories. To ensure the validity of the data, the researcher conducted source triangulation, technique triangulation, and time triangulation, as suggested by Sugiyono (2019). The validity of the instrument is tested through expert tests and readability tests by PAUD practitioners before being used in the field.

Result

Characteristics of Informants

The informants in this study consisted of five children aged 5-6 years who lived in Jambu Village, Kayan Hilir District. These children have relatively similar backgrounds, namely coming from families with lower middle class education and economic levels. Their daily activities are mostly spent playing in the environment around the house, either individually or in groups. Although they have not fully participated in formal education, these children show high enthusiasm in participating in physical games such as engklek. In addition, the social interaction between them is quite intense because of the village environment that supports the atmosphere of playing collectively.

Two adults were also key informants, a 28-year-old mother and a 37-year-old female community member. Both have direct involvement in childcare as well as observation of play activities that take place in the village environment. This informant provides important information about people's perception of traditional games, children's play habits, and the influence of engklek games on children's cognitive development. Both also have similar childhood experiences in playing engklek, so their understanding of the dynamics of the game is quite deep. The existence of informants today helps to strengthen the analysis of the social and cultural context of children's play practices in the village.

Engklek Game as an Initial Stimulus for Numeracy Skills

Engklek games provide an initial cognitive stimulus for children in recognizing and sorting numbers. Through direct observation, researchers found that each child consistently said numbers one at a time while jumping over the box in a game. This activity

takes place naturally without pressure, but still shows the process of internalizing numbers. For example, in one game session, a boy excitedly says, "One, two, three, four, five..." while jumping from box to box with full confidence. This ability is not purely memorized, but it shows simultaneous motor involvement, concentration, and short-term memory, all of which support early learning to count.

The importance of the role of the engklek game in introducing the sequence of numbers was also emphasized by the parents who became informants. They said that since they regularly play engklek, their children remember numbers faster, even before getting formal lessons at school. An informant said, "My son can now say numbers up to ten, because he keeps playing engklek every day." The researcher interprets that this game activity creates a direct connection between the body, space, and numbers, so that the learning process becomes more contextual and fun. In the context of early childhood education, engklek games have proven not only as entertainment, but also as an early learning strategy that supports the natural development of numeracy.

Introduction to the Concept of Numbers and Number Symbols Through Playing Experience

In addition to the sequence of numbers, the engklek game also introduces children to a deeper understanding of the concept of numbers and number symbols. In the process of play, children are faced with certain rules such as not stepping on a certain box or having to land right in a box with a certain number. When throwing a stone (gacuk) into a certain box, the child automatically remembers and recognizes the number written on the box. In one observation, a child said, "If you fall at number five, you can't step on it, you have to jump far." This shows that they not only recognize numbers, but are also able to associate them with specific actions, which are characteristic of the development of logical thinking at an early age.

This understanding is also acknowledged by community informants who stated that children understand numbers faster when playing engklek than when learning formally. "Playing engklek is like learning, but children don't feel told to learn," said one of the adult informants. The researchers interpreted this finding as a strong indication that engklek games can be a bridge between abstract symbols of numbers and children's concrete understanding. This process reinforces the idea that early childhood learns better through physical activity and hands-on experience. In the context of local culture, these games are not only traditional heritage, but also an effective educational vehicle to foster numeracy skills while building cultural connections from an early age.

Summary of Findings and Preliminary Interpretation

Overall, the findings of the study show that traditional games of engklek significantly contribute to the development of early childhood numeracy skills, especially in terms of recognizing numbers, understanding the sequence of numbers, and building associations

between number symbols and real actions. Engklek play activities offer fun, participatory, and stress-free learning, which is in accordance with the characteristics of early childhood. This is different from the formal approach that tends to emphasize the academic aspect without considering the child's exploratory needs. In play interactions, children subconsciously form an understanding of the rules, strategies, and logical sequences that are an integral part of the counting process.

The initial interpretation of the researcher shows that engklek games not only function as a means of motor and recreation, but also as an educational tool based on local wisdom. In the social and cultural context of the people of Jambu Village, this game not only maintains traditional values, but also creates a learning space that is independent, integrated, and in accordance with children's development. Therefore, it is important for educators, parents, and education policymakers to consider the integration of traditional games into the early childhood education curriculum as a contextual, inclusive, and culturally rooted approach to learning.

Discussion

The results of this study reveal that activities that are carried out naturally in children's social contexts, such as traditional games, can be an effective means of learning, especially in the development of cognitive aspects such as numeracy skills. These findings show that children can recognize the sequence of numbers, understand the concept of numbers, and recognize the symbols of numbers through direct involvement in concrete and fun game of knots. This is in line with the characteristics of early childhood development that tend to learn more effectively through hands-on experience and activities that involve gestures. Children not only memorize numbers verbally, but also interpret numbers in the context of real actions—jumping over boxes, throwing rocks, and following the rules of the game.

The interpretation of these findings can be explained through Jean Piaget's theory of cognitive development, which states that early childhood is in the preoperational stage, where they begin to develop symbolic thinking but are still highly dependent on concrete experiences. Engklek games provide conditions that suit the needs of this development, because they present numbers in visual and motor form that can be felt directly by children. This research reinforces the view that the ideal numeracy learning process for early childhood is not through abstract and verbal approaches alone, but through contextual and multisensory approaches. These findings also support the results of previous research as revealed by Survia and Mulanirum (Survia & Mulanirum, 2023) and Eliya Desvarosa (Desvarosa, 2016), which show that engklek games are effective in improving the numeracy aspect of early childhood.

In the context of comparison with previous studies, the results of this study reinforce a number of studies that place traditional games as a medium for stimulating cognitive

development. However, this study highlights the deeper dimensions of locality and cultural wisdom of the engklek game, especially in the context of rural communities. While many previous studies have focused on purely pedagogical aspects, this study adds a socio-cultural dimension that shows how traditional games are not only a learning tool, but also a vehicle for the inheritance of local values, norms, and identities. Therefore, these findings show compatibility not only with the initial hypothesis regarding the effectiveness of engklek games on numeracy skills, but also add insight into the role of traditional games in character education and early childhood identity formation.

The implications of the results of this research are very broad and relevant, both in the field of early childhood education, curriculum policies, and learning practices in the field. For education practitioners, these findings can serve as a foundation for designing contextual and fun local culture-based learning. For policymakers, this study shows the importance of revitalizing traditional games in the context of early childhood education, especially in rural areas rich in cultural heritage. The integration of games such as engklek in learning activities not only supports cognitive development, but also strengthens children's relationships with their environment and builds cultural awareness from an early age. Thus, traditional games are not only a heritage that must be preserved, but also a potential rich educational resource.

However, this study has limitations that need to be considered. The main limitation lies in the limited scope of participants and is local, so generalization of results to a wider population needs to be done carefully. In addition, this study only focuses on one type of traditional game and one aspect of child development, namely numeracy skills. For this reason, further research is recommended to involve more participants from different cultural backgrounds, examine other traditional games, and explore their influence on more diverse aspects of child development such as social-emotional, language, and creativity. Longitudinal studies are also needed to see the long-term impact of traditional games in supporting children's learning readiness holistically. With a broader and more in-depth approach, traditional games will increasingly be recognized as an authentic, effective, and contextual educational method in building the foundation of child development.

Conclusion

This study aims to explore the role of traditional Engklek games in developing the numeracy skills of children aged 5–6 years in Jambu Village, Kayan Hilir District, with a main focus on how play activities based on local culture can be an effective, natural, and contextual means of learning for early childhood. The findings show that through engklek games, children not only recognize and pronounce numbers sequentially, but also begin to understand the concept of numbers and number symbols through fun and repetitive concrete experiences. These results confirm that traditional games have not only

entertainment value, but also a profound educational function in actively and participatingly shaping the child's cognitive foundation. This research makes an important contribution to the development of an early childhood learning model based on local wisdom, by recommending the integration of traditional games such as engklek into learning activities in the school and family environment as a strategy for stimulating meaningful early numeracy. The implications of this study open up opportunities for follow-up studies with a wider scope, both in terms of variations in traditional games, aspects of child development studied, and longitudinal approaches to observe the long-term impact of play on children's learning readiness and holistic growth.

References

Abdurraheem, H., Muritala, & Suleiman, I. (2024). Exploring the Psycholinguistic Effects of Ludo and Ayo on Language Development and Cognition. *Global Research Journal of Social Sciences and Management.*, *02*(02), 140–149. https://doi.org/10.55306/grjssm.2024.2207

Alvisari, D., Lah, Y. C., & Tun, H. (2024). The Effectiveness of The Traditional Game Congklak in Developing Children's Cognitiveness at Kindergarten. *Journal of Basic Education Research*. https://doi.org/10.37251/jber.v4i3.893

Apriyanda, A., Lubis, N. K. M., Sinaga, N. A., Nadeak, A. C., & Siddik, F. (2024). Pengaruh Olahraga Permainan Tradisional Congklak Terhadap Perkembangan Psikomotorik dan Kognitif Siswa Sekolah Dasar. *Jurnal Sadewa*, *2*(4), 201–210. https://doi.org/10.61132/sadewa.v2i4.1289

Desvarosa, E. (2016). PENERAPAN PERMAINAN TRADISIONAL ENGKLEK DALAM MENINGKATKAN KEMAMPUAN KOGNITIF ANAK USIA 5-6 TAHUN DI TK BINA GUNA. *Jurnal Handayani*, *6*(1). https://doi.org/10.24114/jh.v6i1.5042

Hasan, B., & Husein, M. (2024). Traditional Games as a Means of Cognitive Stimulation: An Analysis of Child Development: A Systematica Review. *International Journal of Multidisciplinary Research and Analysis*, *07*(10). https://doi.org/10.47191/ijmra/v7-i10-28

Hidayah, F. N., & Retnawati, H. (2024). The Impact of Numeracy on Early Childhood Development: A Meta-Analysis of Experimental Studies. *Golden Age: Jurnal Ilmiah Tumbuh Kembang Anak Usia Dini*, *9*(3), 559–573. https://doi.org/10.14421/jga.2024.93-15

Khasanah, I., & Purnamasari, I. (2023). Role-Playing Methods: Efforts to Stimulate the Development of Early Childhood Numeracy Literacy. *Journal of Social Research*, *2*(4), 1074–1078. https://doi.org/10.55324/josr.v2i4.776

Lucas, F. M. M. (2017). The Game as an Early Childhood Learning Resource for Intercultural Education. *Procedia - Social and Behavioral Sciences*, *237*, 908–913. https://doi.org/10.1016/j.sbspro.2017.02.127

Masykura Setiadi, F., Maryati, S., & Mubharokkh, A. S. (2024). Analisis Dampak Penggunaan Gadget Terhadap Perkembangan Psikologis dan Keagamaan Anak Usia Dini (TK dan SD) dalam Perspektif Pendidikan Agama Islam. *Muaddib: Islamic Education Journal*, *7*(1), 1–11. https://doi.org/10.19109/muaddib.v7i1.24432

Nasution, A. F. (2023). *Metode Penelitian Kualitatif* . CV. Harfa Creative.

Ndlovu, B. Ntombizodwa., Okeke, C. I. O., Nhase, Z., Ugwuanyi, C. S. U. C. S., Okeke, C. C., & Ede, M. O. (2023). Impact of play-based learning on the development of children in mobile early childhood care and education centres. *International Journal of Research In Business and Social Science*, *12*(3), 432–440. https://doi.org/10.20525/ijrbs.v12i3.2358

Nugraha, A., & Nuriadin, I. (2025). The Development of Children's Early Numeracy Skills in The Piaget's Preoperational Stage. *Mathema*, *7*(1), 42. https://doi.org/10.33365/jm.v7i1.4484

Pertiwi, D. A., Fitroh, S. F., & Mayangsari, D. (2018). *Pengaruh Permainan Tradisional Engklek Terhadap Perkembangan Kognitif Anak Usia 5-6 Tahun*. *5*(2), 86–100. https://doi.org/10.21107/PGPAUDTRUNOJOYO.V5I2.4883

pradhana, K. pahyu, Azizah, A. N. I., Husna, N., Sauqi, Q., Sauqi, S., & Hanline, M. F. (2024). Application of Traditional Dakon Games in Improving Cognitive Abilities in Early Childhood. *Zuriah*, *2*(2), 54–60. https://doi.org/10.55210/8c2t2t18

Sugiyono. (2019). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D* . CV Alvabeta.

Survia, D., & Mulanirum, D. (2023). Upaya Meningkatkan Kemampuan Mengenal Angka 1-10 Melalui Media Bermain Kartu Angka Pada Anak Usia Dini. *Al Tahdzib: Jurnal Pendidikan Islam Anak Usia Dini*, *2*(2), 103–111. https://doi.org/10.54150/altahdzib.v2i2.249

Usman, M., & Yusuf, N. Y. N. (2022). The Utilization of Traditional Games for Early Childhood Development. *Proceedings of International Conference on Multidiciplinary Research*, *4*(1), 146–152. https://doi.org/10.32672/pic-mr.v4i1.3761

Winnuly, Hikmawati, L., & Sari, A. M. M. (2024). Pembelajaran Numerasi Berbasis Potensi Lokal Pada Anak Usia Dini. *Deleted Journal*, *1*(2), 80–92. https://doi.org/10.30822/arsen.v1i2.2971

Yean, F. J., & Ngadni, I. (2024). Play-Based Learning in Malaysian Early Childhood Education: A Study of Diploma Students' Perspectives and Challenges. *International Journal of Academic Research in Progressive Education and Development*, *13*(4). https://doi.org/10.6007/ijarped/v13-i4/23143